

Amendments to the Specification:

Please replace the paragraph on page 4, lines 13-14, with the following amended paragraph:

Figures 9A to 9C ~~9E~~ are tables showing the particle features used with the various neural nets in the LPF and HPF scan processes of the present invention.

Please replace the paragraph on page 24, line 28 to page 25, line 6, with the following amended paragraph:

The first neural net applied to the particle image is the AMOR Classifier Net, which decides whether or not the particle is amorphous. For the preferred embodiment, this net includes 42 inputs for a selected subset of the 198 particle features described above, 20 neurons in the hidden layer, and two neurons in the output layer. The column entitled LPF AMOR2 in the table of Figs. 9A-9C ~~9A-9E~~ shows the numbers of the 42 particle features described above that were selected for use with this net. The first and second outputs of this net correspond to the probabilities that the particle is or is not amorphous, respectively. Whichever probability is higher constitutes the decision of the net. If the net decides the particle is amorphous, then the analysis of the particle ends.

Please replace the paragraph on page 25, lines 7-16, with the following amended paragraph:

If it is decided that the particle is not amorphous, then the SQEP/CAST/OTHER Classifier Net is applied, which decides whether the particle is a Squamous Epithelial cell (SQEP), a Cast cell (CAST), or another type of cell. For the preferred embodiment, this net includes 48 inputs for a selected subset of the 198 particle features described above, 20 neurons in the hidden layer, and three neurons in the output layer. The column entitled LPF CAST/SQEP/OTHER3 in the table of Figs. 9A-9C ~~9A-9E~~ shows the numbers of the 48 particle

features described above that were selected for use with this net. The first, second and third outputs of this net correspond to the probabilities that the particle is a Cast, a SQEP, or another particle type, respectively. Whichever probability is highest constitutes the decision of the net.

Please replace the paragraph on page 25, lines 17-26, with the following amended paragraph:

If it is decided that the particle is a Cast cell, then the CAST Classifier Net is applied, which decides whether the particle is a White Blood Cell Clump (WBCC), a Hyaline Cast Cell (HYAL), or an unclassified cast (UNCC) such as a pathological cast cell. For the preferred embodiment, this net includes 36 inputs for a selected subset of the 198 particle features described above, 10 neurons in the hidden layer, and three neurons in the output layer. The column entitled LPF CAST3 in the table of Figs. ~~9A-9C~~ 9A-9E shows the numbers of the 36 particle features described above that were selected for use with this net. The first, second and third outputs of this net correspond to the probabilities that the particle is a WBCC, HYAL or UNCC. Whichever probability is highest constitutes the decision of the net.

Please replace the paragraph on page 25, line 29 to page 26, line 8, with the following amended paragraph:

If it is decided that the particle is another type of cell, then the OTHER Classifier Net is applied, which decides whether the particle is a Non-Squamous Epithelial cell (NSE) such as a Renal Epithelial cell or a transitional Epithelial cell, an Unclassified Crystal (UNCX), Yeast (YEAST), or Mucus (MUCS). For the preferred embodiment, this net includes 46 inputs for a selected subset of the 198 particle features described above, 20 neurons in the hidden layer, and four neurons in the output layer. The column entitled LPF OTHER4 in the table of Figs. ~~9A-9C~~ 9A-9E shows the numbers of the 46 particle features described above that were selected for use

with this net. The first, second, third and fourth outputs of this net correspond to the probabilities that the particle is a NSE, UNCX, YEAST, or MUCS. Whichever probability is highest constitutes the decision of the net.

Please replace the paragraph on page 27, lines 7-10, with the following amended paragraph:

In the preferred embodiment, the partial capture test is also used as one of the particle features used by some of the neural nets. The feature value is 1 if the particle boundary is found to hit one or more particle image patch boundaries, and a zero if not. This particle feature is numbered "0" in Figs. ~~9A-9C~~ 9A-9E.

Please replace the paragraph on page 28, lines 10-18, with the following amended paragraph:

The first neural net applied to the particle image is the AMOR Classifier Net, which decides whether or not the particle is amorphous. For the preferred embodiment, this net includes 50 inputs for a selected subset of the 198 particle features described above, 10 neurons in the hidden layer, and two neurons in the output layer. The column entitled HPF AMOR2 in the table of Figs. ~~9A-9C~~ 9A-9E shows the numbers of the 50 particle features described above that were selected for use with this net. The first and second outputs of this net correspond to the probabilities that the particle is or is not amorphous. Whichever probability is higher constitutes the decision of the net. If the net decides the particle is amorphous, then the analysis of the particle ends.

Please replace the paragraph on page 28, lines 19-27, with the following amended paragraph:

If it is decided that the particle is not amorphous, then the Round/Not Round Classifier Net is applied, which decides whether the particle shape exhibits a predetermined amount of roundness. For the preferred embodiment, this net includes 39 inputs for a selected subset of the 198 particle features described above, 20 neurons in the hidden layer, and two neurons in the output layer. The column entitled HPF ROUND/NOT ROUND2 in the table of Figs. ~~9A-9C~~ 9A-9E shows the numbers of the 39 particle features described above that were selected for use with this net. The first and second outputs of this net correspond to the probabilities that the particle is or is not 'round'. Whichever probability is highest constitutes the decision of the net.

Please replace the paragraph on page 28, line 28 to page 29, line 7, with the following amended paragraph:

If it is decided that the particle is 'round', then the Round Cells Classifier Net is applied, which decides whether the particle is a Red Blood Cell (RBC), a White Blood Cell (WBC), a Non-Squamous Epithelial cell (NSE) such as a Renal Epithelial cell or a transitional Epithelial cell, or Yeast (YEAST). For the preferred embodiment, this net includes 18 inputs for a selected subset of the 198 particle features described above, 3 neurons in the hidden layer, and three neurons in the output layer. The column entitled HPF Round4 in the table of Figs. ~~9A-9C~~ 9A-9E shows the numbers of the 18 particle features described above that were selected for use with this net. The first, second, third and fourth outputs of this net correspond to the probabilities that the particle is a RBC, a WBC, a NSE or YEAST, respectively. Whichever probability is highest constitutes the decision of the net.

Please replace the paragraph on page 29, lines 8-18, with the following amended paragraph:

If it is decided that the particle is not 'round', then the Not Round Cells Classifier Net is applied, which decides whether the particle is a Red Blood Cell (RBC), a White Blood Cell (WBC), a Non-Squamous Epithelial cell (NSE) such as a Renal Epithelial cell or a transitional Epithelial cell, an Unclassified Crystal (UNCX), Yeast (YEAST), Sperm (SPRM) or Bacteria (BACT). For the preferred embodiment, this net includes 100 inputs for a selected subset of the 198 particle features described above, 20 neurons in the hidden layer, and seven neurons in the output layer. The column entitled HPF NOT ROUND7 in the table of Figs. ~~9A-9C~~ 9A-9E shows the numbers of the 100 particle features described above that were selected for use with this net. The seven outputs of this net correspond to the probabilities that the particle is a RBC, a WBC, a NSE, a UNCX, a YEAST, a SPRM or a BACT. Whichever probability is highest constitutes the decision of the net.